

REMARKS

The present amendment is in response to the Office Action dated October 26, 2005. Claims 1-32 and 39-44 are now present in this case. Claims 1, 5, 30-32, and 39 are currently amended.

All claims are presently rejected in light of U.S. Patent No. 6,009,342 to Brasch et al. Specifically, claims 1-4 stand rejected under 35 U.S.C. § 102(b) as anticipated by Brasch, while claims 5-32 and 39-44 are rejected under 35 U.S.C. § 103(a) as obvious in light of Brasch. The applicant respectfully traverses this rejection and requests reconsideration. Brasch discloses an imaging method for grading tumors. The Office Action asserts, at page 2, that Figure 2 of Brasch discloses the characteristic behaviors recited in the claims. Specifically, the Office Action states that the bottom curve of Figure 2 in Brasch describes plateau behavior, the second curve in Figure 2 of Brasch corresponds to persistent behavior, and the top curve of Brasch corresponds to washout behavior. However, this hindsight analysis is based on an evaluation of the claims of the pending application and is not based on the description contained within Brasch. For the record, it should be noted that Brasch never identifies any of the three curves in Figure 2. Accordingly, hindsight analysis based on the claims of the pending application is highly inappropriate. In column 4, Brasch describes Figure 2 as indicating permeability of tumors as a function of time. Brasch states that "as can be seen the signal enhancement of benign tumors paralleled the response of blood in the vena cava" while "the signal enhancement of malignant tumors tended to increase over time." (See column 4, lines 39-43.) In the detailed description, Brasch provides a similar description of Figure 2, stating that "in some cases the tumor response tended to decrease over 60 minutes and to parallel the response of blood in the vena cava; this response corresponded histologically to benign tumors (FIG. 2)." (See column 15, lines 14-17.) It should be noted that no two curves in Figure 2 are parallel to each other despite Brasch describing a tumor response as "parallel" the response of blood in the vena cava. Brasch further describes tumor

enhancement for malignant tumors “was noted to increase over time (FIG. 2).” (See column 15, lines 17-19.) It should be noted that the bottom two curves both increase over time, but neither are labeled. Thus, Brasch briefly describes two types of curves in Figure 2, but does not identify any of the three curves illustrated in Figure 2. Furthermore, Brasch clearly states that following the administration of a contrast agent “two dynamic patterns of tumor signal enhancement were observed.” (See column 15, lines 12-14.) In this respect, Brasch teaches directly away from the method recited, by way of example, in claim 1, which clearly describes three characteristic behaviors. Brasch states that only two characteristic behaviors were observed, which means that at least one of the three unlabeled curves in Figure 2 is not depicting a detected response. The Office Action has clearly overstated the teachings of Brasch and has assigned characteristic behaviors to each of the three unlabeled curves in Figure 2 of Brasch. This is mere conjecture and is unsupported by Brasch.

With respect to the rejected claims, claim 1 has been amended to more clearly characterize the detection of an initial increase in imaging intensity and, subsequent to the initial increase in the imaging signal intensity detecting “whether a portion of a tissue volume exhibits an imaging signal washout behavior” as well as “determining whether the portion of a tissue volume exhibits one from the group of an imaging signal plateau behavior and an imaging signal persistent enhancement behavior in the event that the portion of a tissue volume fails to exhibit an imaging signal washout behavior.” Brasch does not ever detect an initial increase in imaging signal intensity or the determination of the tissue volume exhibiting imaging signal washout behavior or, if washout behavior is not exhibited, exhibiting one from a group of signal plateau behavior and persistent enhancement behavior, as recited in claim 1. As discussed above, the three curves in Figure 2 of Brasch are neither labeled nor identified in the detailed description. It is mere conjecture to describe these curves as corresponding to the three characteristic behaviors recited in claim 1. Furthermore, Brasch does not teach or suggest the hierarchical analysis of claim 1 wherein the determination of imaging signal plateau behavior and persistent enhancement behavior

is determined only in the event that the portion of tissue volume “fails to exhibit an imaging signal washout behavior.” Brasch does not teach or suggest such hierarchical analysis. Accordingly, claim 1 is clearly allowable over Brasch. Claims 2-4 are also allowable in view of the fact that they depend from claim 1, and further in view of the recitation in each of those claims.

Claim 5 is a method claim that recites *inter alia* “detecting an initial increase in the imaging signal intensity values” as well as “at a time following the initial increase, determining whether a candidate voxel set exhibits an imaging signal washout behavior.” Claim 5 further recites “determining whether a candidate voxel set exhibits one from the group of an imaging signal plateau behavior and an imaging signal persistent enhancement behavior in the event that a candidate voxel set fails to exhibit an imaging signal washout behavior.” (Emphasis added.) As discussed above with respect to claim 1, Brasch does not address a process of detecting an initial increase in imaging signal intensity and the subsequent analysis to determine whether candidate voxel sets exhibit characteristic behaviors recited in claim 5. As further noted above, the Office Action asserts that the three curves in Figure 2 of Brasch correspond to three behavior characteristics despite the fact that the curves in Brasch are neither labeled nor described in the specification. Furthermore, Brasch, at column 15, states that two dynamic response patterns were observed. This is in direct contrast to the assertion in the Office Action that Brasch describes three characteristic response behaviors. The Office Action is clearly using the claims as a roadmap to interpretation of a figure that is neither labeled nor described in the reference. Furthermore, Brasch does not teach or suggest the hierarchical analysis recited in the method of claim 5 wherein the candidate voxel set is determined to be from one of a group of imaging signal plateau behavior or imaging signal persistent enhancement behavior in the event that it fails to exhibit imaging signal washout behavior. Brasch does not teach or suggest such hierarchical analysis. Accordingly, claim 5 is clearly allowable over Brasch. Claims 6-29 are also allowable in view of the fact that they depend from claim 5, and further in view of the recitation in each of those claims.

Claim 30 is a method directed to contrast enhanced medical imaging following the administration of an imaging contrast agent and recites *inter alia* “detecting an initial increase in the imaging signal intensity value in a candidate voxel set.” As noted above, Brasch et al. does not teach or suggest any initial increase in imaging signal intensity. For this reason alone, claim 30 is clearly allowable over Brasch. Furthermore, claim 30 recites “determining whether the candidate voxel set exhibits an imaging signal washout behavior” as well as “determining whether the candidate voxel set exhibits an imaging signal plateau behavior after determining whether the candidate voxel set exhibits an imaging signal washout behavior.” As discussed in detail above, Brasch does not teach or suggest determination of imaging signal washout behavior following the detection of an initial increase in the imaging signal intensity values. Furthermore, Brasch does not suggest determining whether a candidate voxel set exhibits an imaging signal plateau behavior “after determining whether a candidate voxel set exhibits an imaging signal washout behavior.” (Emphasis added.) For these reasons, claim 30 is clearly allowable over Brasch.

Claim 31 is also a method claim that recites *inter alia* “detecting an initial increase in the imaging intensity values in the candidate voxel set” as well as “after detecting the initial increase, determining whether the candidate voxel set exhibits an imaging signal washout behavior.” As discussed above, Brasch does not teach or suggest detection of any initial increase in imaging intensity value nor the subsequent determination of whether a candidate voxel set exhibits imaging signal washout behavior. For these reasons alone, claim 31 is allowable over Brasch et al. Furthermore, claim 31 recites “determining whether the candidate voxel set exhibits an imaging plateau behavior in the event that the candidate voxel set fails to exhibit the imaging signal washout behavior.” (Emphasis added.) As discussed above, Brasch describes two types of behaviors, but does not consider the detection of any initial increase in imaging intensity value and does not teach or suggest the hierarchical analysis to determine whether the candidate voxel set exhibits imaging signal plateau behavior only in the event that it fails to exhibit the imaging signal washout behavior.

Accordingly, claim 31 is clearly allowable over Brasch et al. Claim 32 is also allowable in view of the fact that it depends from claim 1, and further in view of the recitation in that claim.

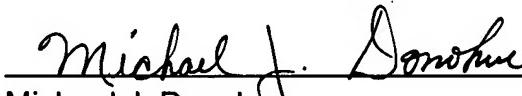
Claim 39 is a computer readable medium claim which recites *inter alia* “after an initial increase in imaging signal intensity, determining whether a candidate voxel set that forms part of a medical imaging data set corresponding to a tissue volume exhibits an imaging signal washout behavior” as well as determining whether the candidate voxel set “exhibits one from a group of behaviors comprising an imaging signal plateau behavior and an imaging signal persistent enhancement behavior in the event that a candidate voxel set fails to exhibit imaging signal washout behavior.” (Emphasis added.) As discussed above, Brasch does not teach or suggest any initial increase in imaging signal intensity nor a determination, after the initial increase in imaging signal intensity of whether candidate voxel sets exhibit an imaging signal washout behavior. For this reason alone, claim 39 is allowable over Brasch. Furthermore, Brasch does not teach or suggest the hierarchical analysis recited in claim 39 wherein the determination is made whether the candidate voxel set exhibits one from a group of behaviors comprising an imaging signal plateau behavior and an imaging signal persistent enhancement behavior only in the event that the candidate voxel set fails to exhibit the imaging signal washout behavior. For these reasons, claim 39 is clearly allowable over Brasch. Claims 40-44 are also allowable in view of the fact that they depend from claim 39, and further in view of the recitation in each of those claims.

In view of the above amendments and remarks, reconsideration of the subject application and its allowance are kindly requested. The applicant has made a good faith effort to place all claims in condition for allowance. If questions remain regarding the present application, the Examiner is invited to contact the undersigned at (206) 628-7640.

Respectfully submitted,

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